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Editorial Offices:
39 Cortlandt St., New York City
(Phone: Cortlandt 8362)

E. R. ALLURED, Publisher
ROBERT RANDOLPH, Editor

EDITORIAL STAFF:

A. Adams Lund — Stroud Jordan
N. W. Kempf — A. P. Bryant
Clifford Clay — R. L. Purdon
Orville H. Kneen
Carey P. McCord, M. D.
De Witt Cottrell — Frank Mulford
A. D. Bullerjahn

English Representative:

L. M. Weybridge, Members Mansions,
38 Victoria St., London S. W. 1

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Editorial

ROBERT RANDOLPH, Editor

The M. C. Surveys and What They Mean

IN our issue of August last year there was inaugurated for the first time a series of original surveys on confectioners' raw materials through the medium of which it is hoped not only to acquaint the confectionery manufacturer with the fine distinctions of quality which exist between the numerous competing products in major lines, but to awaken him to a quality consciousness which will carry through every stage of manufacture from the raw material to the finished goods.

The first of these, "A Survey of Competitive Corn Syrups," has received a most gratifying reception, not only from the trade at large, but from other industries as well. The biscuit and cracker manufacturers' association and others wrote in asking for further particulars on behalf of their constituents, and the corn syrup refiners themselves, all but one or two of whom have been heard from to date, wrote or called either to express favorable comment upon the fair manner in which the tests were conducted or sought to compare our methods of analysis with their own.

At a meeting of the corn syrup refiners held a short while after the publication of these tests, the survey was characterized by the members themselves as the work of some person or persons who *knew* corn syrup and that it showed in a convincing manner that there really *was* a difference in the quality of the syrups on the market notwithstanding the refiners' best engineering skill and their continual efforts towards standardization. The sweeping results of the survey are already becoming apparent in the refiners' growing interest in the technical problems of the confectioner with respect to the use of both corn syrup and corn sugar, and their inclination to discard the outgrown Beaumé standard and substitute in its place a sweetness standard which will more readily adapt itself to increased usefulness for the varying duties which the syrups are called upon to perform in modern candy making. No more important results have been forthcoming from this quarter for the past two decades.

Two other surveys are now under way—one on sugars and another on hard butters. Sealed samples are being gathered from all over the country and painstakingly tested at laboratories appropriately manned and equipped for the particular type of work which the survey involves. These should be ready for publication within the next 60 to 90 days, and further announcements concerning the progress of the work will appear in these issues up to the time of final publication.

We shall be pleased to receive our subscribers' comments relating to their particular requirements in these fields, either suggesting original tests or methods of approach, or assisting us in any other way to make these surveys of maximum usefulness to the entire candy industry. This is the sort of constructive service which we believe a business paper owes to its industry.

Art's Part in the Candy Industry

IS the voice of Art silent in our councils? In our local trade meetings and at our national conventions, when we talk sales and advertising do we give package designs its place in the picture? Package design is today one of the greatest instrumentalities for increasing sales available to the industry, yet one seldom if ever hears it mentioned at our gatherings. Other industries, aware of the truth of the assertion that "it is design first and last that sells the goods," no longer pass over the subject as one which has no direct bearing upon their business but invite prominent specialists on industrial design to address them on this vital phase of their activities.

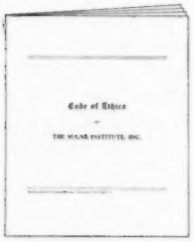
Self-satisfied in our conceit perhaps, we are loath to realize that the old order has changed. We are in our own diminutive

way Henry Fords, railing against the fate that has made him spend hundreds of millions of dollars to learn the lesson that the product must now be beautiful as well as useful. The hardest truth for the manufacturer to accept is that the consuming public is by the very nature of things, *always one step ahead of him.*

If we are to keep in step with the times we are going to have to dust out some of our pet cobwebs. We must approach the subject of artistic packages with an open mind, without fixed limitations as to form, shape, color, material or texture. We cannot expect to make a tin box look like cardboard or a cardboard box like wood. We cannot put the bulk of our packaging appropriations into the wrap alone and let coarse findings and cheapened construction give the lie to it the moment the customer removes the cover. Beauty of design goes deeper than surface pretensions. It extends through all the technique of construction and the pretty little details of findings. The consumer may not consciously observe these fine distinctions which make for attractiveness in the finished package, yet subconsciously he is impressed with the pleasing or displeasing effect of the whole. He cannot help but associate these reactions with the products whose advertisements they are.

Mr. Richard Bach, Associate in Industrial Art of the Metropolitan Museum of Art, whose article "Package Logic" was featured in our September issue, has promised to prepare for us a series of articles on the elements of candy package design. The series will commence in an early issue. We expect this to be our part toward quickening interest in the need of good design in candy packages. Meanwhile, give the subject a bit of thought for your next trade gathering.

Ethics in the Sugar Industry



One doubts whether it will ever be quite clear to the average sugar buyer just what code of ethics prompted the American sugar refiners to organize a national "Sugar Institute," and to violate their existing agreements with their customers, in support of a so-called "Code of Ethics" which clearly involves a gigantic effort to fix the price of refined sugar in this country.

Interspersed among somewhat loftier sentiments—all about serving as public benefactors and preserving equality among merchants, etc.—are the following three base hits:

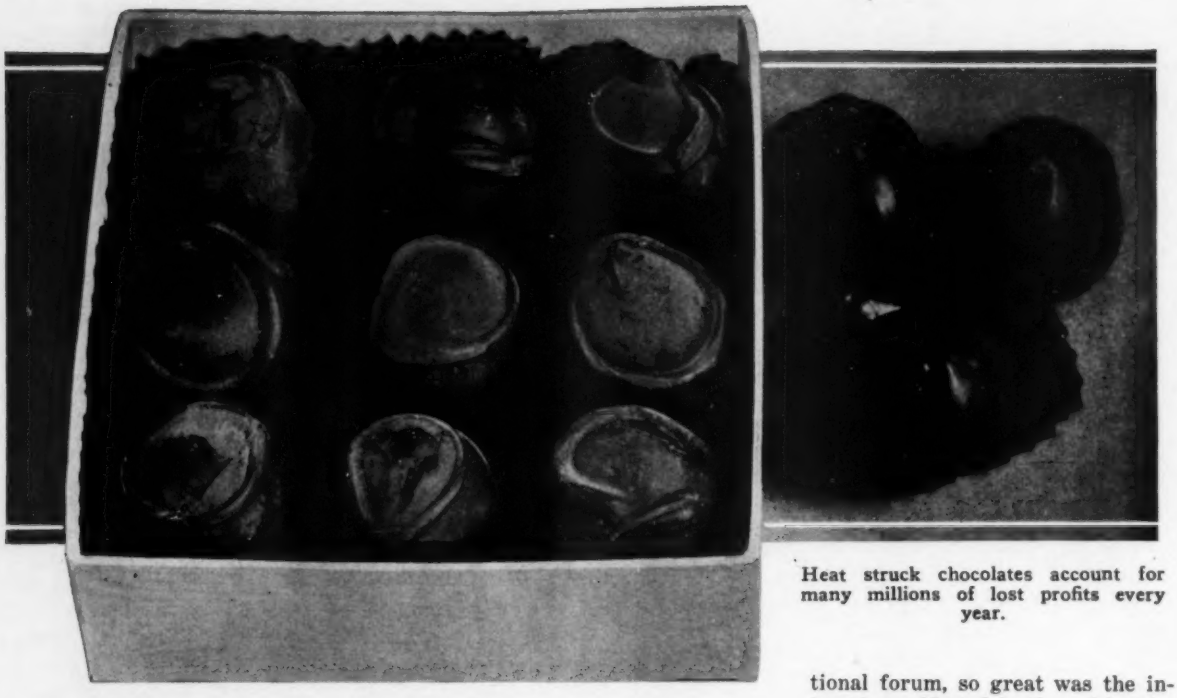
"The organization of this Institute was a frank recognition, in and of itself, that customs and practices had grown up in the industry which were unsound and unbusinesslike."

"The Institute condemns as discrimnatory, and in so far as this industry is concerned, as unbusinesslike, uneconomic and unsound, concessions made to purchasers on the basis of quantity purchased."

The code then proceeds to rule out the following on one ground or another, as unethical, discriminatory, wasteful, unbusinesslike or what have you:

(a) Special allowances such as discounts, brokerages, allowances for storage or advertising; variations from announced grade or package differentials; reduction or substitution of grades or packings; delay billings; full discounts in cases of delay payment, etc., etc.
(b) Split billings, exception cars moving on an 80,000 lb. minimum and rate.
(c) The use of differential rates on consignments.
(d) Payment of brokerage where any part of it enures to the benefit of the purchaser.
(e) Storage of sugar in customer's warehouses.
(f) Allotments to brokers running beyond the close of business of the day on which an advance in price is announced by the refiner.
(g) Special services to customers without appropriate charges therefor.
(h) The sale of second-hand sugars by refiners.
(i) Sales for export under contracts which do not provide for shipment out of the country.
(j) The giving of options.
(k) Consignment shipments to be made only to recognized detention points for reshipment.

If the buyer from Sleepy Hollow was content to assume that the refiners' list price was an infallible guide to what his competitors were paying for sugar, this confession of the high crimes of the sugar industry will serve as a needed aperient. But if perchance he has heard somewhere that "competition is the life of all trade," these terrible disclosures diminish appreciably in immediate significance. He may ask himself where, when and how the great law of Trade and Barter became suspended in the case of the sugar refiners and where he was when it happened; or, which is more likely, he will dismiss the matter altogether confident that leopard spots cannot be made into halos overnight.



Heat struck chocolates account for many millions of lost profits every year.

HEAT-STRUCK!

(A Sequel to "The Old Gray Nightmare")

BY ROBERT RANDOLPH

THE cry goes up from our candy factories—"Heat-struck!" It is the tragedy of modern candy-making.

For a layman to undertake to discuss the problem which has vexed some of our best known candy chemists during the past quarter of a century might be regarded as another case where "fools rush in," etc., except for an important fact—the gentlemen in question have never quite made up their minds what to do about it. A practical man always has a tactical advantage in such a discussion; he will neither be expected nor required to treat the subject with the same degree of technicality and brain-wracking detail.

Nevertheless, it may be well to have it understood right here and now that the writer has nothing to sell or to promote; he can offer no breath-taking formula of his own to prevent the graying of chocolate and, furthermore, notwithstanding the impressive testimonials of certain self-styled experts, if such a formula or process exists, he has yet to hear of it. No, this paper is written with the purely modest aim of red-lighting a series of man-holes which unwary candymakers have been prone to fall into. Our purpose is not so much to unravel the mystery of graying by inference and deduction as to suggest to those competent to carry out the suggestions, those avenues of research or lines of thought which have appeared to us to offer the greatest promise of ultimate solution.

Prize Contest Takes Unexpected Turn

Several years ago, an Eastern confectionery manufacturer offered in one of the national magazines a prize of $1000.00 for the most practicable method of preventing chocolate from turning gray. No, no one did. But the replies which were received by the Company both during and after the contest amounted almost to an international forum, so great was the interest manifested in the subject by persons in all walks of life. While a majority of the answers indicated familiarity with the problem at close range, the remedies which they proposed would have been considered more or less humorous had they not also exhibited a woeful lack of scientific and dietetic understanding.

The various nostrums and "cures" which were suggested were mostly of the four-leaf clover variety, yet even these unpromising expedients were accorded a fair trial under laboratory test conditions in the vain hope that the smartalecks of the nation's laboratories might for once be proved wrong.

That the high melt fats would be the most prolific source of suggestions was practically a foregone conclusion, yet the variety of fats submitted was something of a blow. Paraffin, tallow, carnauba wax, peanut stearine—these are typical of the ingredients reputed to have almost miraculous properties when incorporated in the chocolate in the proportions stated. That the answers exhibited an apparent disdain for the legal proprieties must be set down to ignorance for the contestants most likely did not know that substances such as paraffin, tallow and carnauba wax are

not food products and consequently cannot be employed under the Pure Food Laws of the United States.

Lacquers came next in order of popularity with the rank and file,—gum benzoin, waterglass—through the whole gamut of glazes down to the common garden variety of vegetable "Easter-egg" shellac. The glaze most frequently suggested was gum benzoin, which is unlawful as an ingredient of chocolate, though not as a glaze. As in the case of the high melt fats, the employment of certain of the lacquers, such as waterglass, is forbidden by the Department of Agriculture.

The gum advocates also had their day,—with casein, dextrins of various origins, and gelatine,—each credentialled as the very last word in preventing the graying of chocolate.

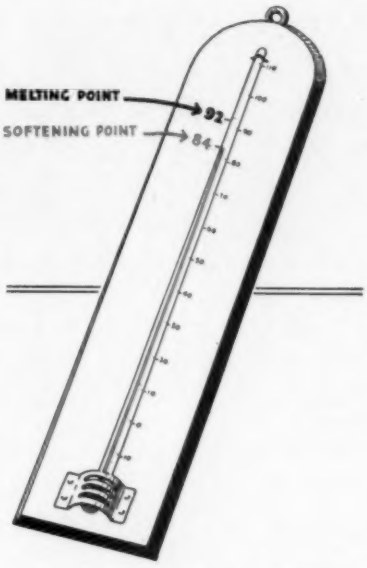
Duping the Dupes, a Full-Fledged Industry

It was scarcely to be expected that a contest conducted under these conditions would go down in the history of the industry for its new or revolutionary ideas, yet it did clearly indicate one thing; which is, that even in this supposedly enlightened day and age, c o u n t l e s s otherwise "practical" candy makers all over the world still pin their hopes of scientific salvation on a rabbit's foot, and permit themselves to be duped by the manufacturers of spurious wares.

On the other hand, the contest also revealed a small minority of wholesome ingredients whose unquestioned usefulness in bringing about a condition of *temporary* immunity to grayness, entitle them to the recognition of the candy industry per se. It is to be deplored that the really just claims of these products have been discounted by the more advanced school of thought in the industry, and that, *largely because of the tendency on the part of their respective manufacturers to grossly overstate the work which they will do.*

If we regard these articles in the light of "retardants," rather than as strict "preventatives" of grayness, we must concede that they have a legitimate interim function to perform. Treated as such, they will go a long way toward winning the respect and consideration which they deserve.

Clearly, certain avenues of research hold greater promise than others of ultimately yielding the solution of our problem. Suppose we approach the phenomenon from a purely physical standpoint. What is the real cause of graying? What does that lusterless film of grayness consist of?



It is the softening point and not the melting point which flies the danger signal of approaching grayness.

Two Forms of Grayness

Well, first, there are two different types of grayness — "sugar bloom" and "butter bloom." Sugar bloom is due to "sweating." If you take a sweetened coating from some cool place to a warmer place where the humidity is fairly high, the sudden contact of the cool chocolate with the warm, moisture-laden atmosphere causes that moisture to be deposited on its surface in the form of a light "dew" or "sweat." This film of moisture greedily dissolves a portion of the sugar from the coating; upon drying off again this sugar crystallizes out on the surface of the chocolate in the form of a thin white film known as sugar bloom.

This type of grayness is neither as common as butter bloom nor as difficult to control. Where it occurs repeatedly, under normal weather conditions, it can usually be traced to improper storage, failure to "acclimate" the goods upon withdrawal to warmer temperatures, faulty packaging or a lack of proper air conditioning in the packing room. But because we know the exact nature and chemistry of this reaction, this type of graying can be easily and adequately controlled.

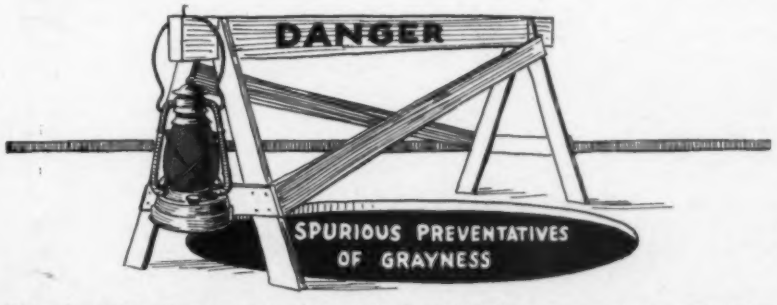
But not so butter bloom. Here grayness on the surface of the coating consists of a fine film of crystalline cocoa butter. The most logical explanation of how the film gets there is offered by the engaging theory of "capillary action."

The Laws of Capillary Attraction

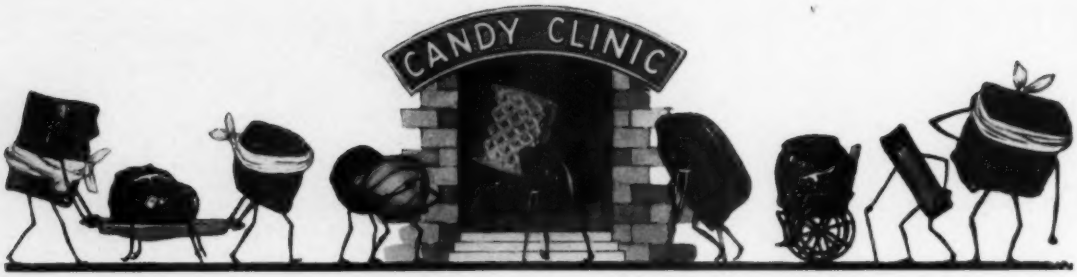
Wherever liquids and solids exist together in a common substance, pressures are set up which force the liquid through the mass in all directions. Chocolate, when the least bit of its fat content becomes melted, becomes just such a compound of liquid and solid and consequently it is governed by all the laws of capillary action. The resulting pressures which are set up within the chocolate eventually force the melted portion of the butter through to the surface, where it crystallizes out as a film of grayness as the product cools.

One step further: If we take a long glass tube open at both ends, fill it with ordinary earth and dip one end in a shallow basin of water, the water will be observed to move upward through the earth column the same as oil rises in an ordinary

(*Continued on page* 50.)



Wherein the author stresses the need of red-lighting some of the man-holes which unwary candymakers have been prone to fall into.



The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Each month he picks up at random a number of samples of representative candies. This month it is dollar chocolates; next month it will be undipped marshmallows. Each sample represents a bona-fide purchase in the retail market, so that any one of these samples may be yours.

This series of frank criticisms on well-known branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of the M. C.

Dollar Chocolates

Following is my report on samples of nationally-advertised $1.00 *assorted chocolates examined at the M. C. Candy Clinic:*

	PURCHASE S-4	PURCHASE K-4	PURCHASE L-4	PURCHASE A-4
OUTER WRAP	Light weight Cellophane secured with two gold seals.	Light weight Cellophane, two seals.	Light weight Cellophane, two seals.	Heavy Cellophane, two seals.
RIBBON	Ribbonzene; no bow.	½ inch—light blue, with small bow.	None.	None.
BOX	Extension, padded top. Blue.	Extension, tight-wrapped. White.	Shoulder top. White.	Extension, padded top. Pink.
PACKING	All pieces cupped but loosely packed.	Good. All cupped.	Loose, but all pieces cupped.	Very good. All cupped.
COATING	Color too light. About 35%.	Color a trifle dark. Gloss good. About 30%.	Very dark; tasted as though scorched. About 35 to 40%.	Half milk and half sweet chocolate. Both excellent in flavor and color. Very good gloss.
NUMBER OF PIECES	40	37	35	34
NUMBER OF VARIETIES	17	15	19	16
CONDITION	Badly grayed. Taste only fair.	Fair. Some pieces tasted old.	No gloss whatever. Coating looked gritty but was not.	Excellent.
CENTERS	Marshmallow grained. Caramel tough. Plantation not pulled enough. Peppermint very poor in flavor, as were also the lemon creams.	Butterscotch too hard. Sponge almost solid. Jelly marshmallow grained. Fudge tasted like cheap caramel cream. likewise the caramels. Raisin cream entirely too highly flavored.	Lemon and orange creams had rancid taste. Caramel partly grained. One piece (plantation or butterscotch?) was very hard and entirely lacking in taste.	Exceptionally fine.
DIPPING	Approximately 50% hand-dipped.	Approximately 75% hand-dipped.	Mostly all hand-dipped. Very plain and carelessly done.	All hand-dipped; half fancy.
STROKES	Very well done. A few pieces split work.	Fair. Not very plain.	No fancy strokes.	
REMARKS	This package is not at all up to the high standard set by its manufacturers.	Centers could be improved upon. Raw materials not of the best quality and flavors poor.	This package of chocolates is not up to the so-called "dollar class." There are far better being retailed at 80c lb.	This package was a surprise and pleasure. Raw materials, flavors; in fact, everything that went to make it up was of the best. This box is distinctly above the dollar class and could very easily sell for more money.

A Word from the Senior Diagnostician

Have you ever asked yourself what the retail customer has a right to expect for $1.00?—and whether your package meets these requirements in quality, appearance and freshness?

It is surprising, in a way, to observe how few of the manufacturers who go into the better class of package goods, take any real interest in the condition of their products after they reach their jobbers' hands—how few of them, for instance, make regular tours of their territories to inspect stock or insist upon their jobbers and retailers periodically returning samples of hold-over merchandise. I suppose they hesitate to suggest to their jobbers any further excuse for returning goods, but I wish these manufacturers could see some of their goods as I have seen them; what a surprise is in store for them!

Candy sold to a jobber is only half sold, for so far as building up consumers' good will is concerned. It would be infinitely better for the manufacturer if much of the candy which is now in the hands of their jobbers or on the retailers' shelves held over from the holidays had been kept in the plant cool room and never sold at all.

The wholesale manufacturer who installs a regular inspection system has much to gain by the experience. In the first place, it will in all probability uncover weaknesses in some of his numbers, which he will be only too glad to correct.

It may be a marshmallow or a coated nut brittle which does not stand up. Or again, it may reveal some chronic shortcoming in the jobber's method of turning over his stock or in storing the goods, which could easily be corrected by a little friendly advice, or technical assistance.

I know of at least one large firm who d e l i b e r a t e l y reduce their agent's order if they think he is over-ordering. This is an excellent plan, but it must be handled diplomatically and expertly to avoid a comeback on embarrassing short deliveries.

THE CANDY CLINIC

NEW YORK CITY

℞

"Shelf Sales" are like so much borrowed money. Your responsibility stops only when the candy is consumed.

Buying a few of your own packages at retail occasionally sometimes furnishes the answer to a lot of questions.

SUPERINTENDENT

The code-dating of package goods has been coming more and more into common use among the progressive element in the trade. Such a system can be of great practical value, while on the other hand it will never mean much to the man who religiously dates all the packages and then forgets to provide a check-up system to see that the stock in his dealers' and retailers' hands is turned over properly.

In examining the samples in this month's clinical test, I notice that most of the caramels, butterscotch and plantations were cast in starch. It is my suggestion that these pieces be made on the slab and cut by machine. There is a big difference between starch run and cut goods and it will be worth your while, from a quality standpoint, to make the change.

A lot has been said about standardizing flavors, but an examination of these goods shows that our knowledge in this department is still woefully lacking. If you once decide on how much flavor to use, employ a glass graduate and see that the candy maker sticks to it. Rule of thumb may be O. K., only some day Tony may lose his thumb and then where will you be?

Where you use caramel paste be careful not to let it get rancid. Keep it in a cool place. It is a *milk* product.

When you come to packaging, if you have any regard for the way the customer gets the candy, tailor the box to fit the candy instead of the other way around. If you have to use oversize boxes trim down their capacity with partitions or dividers of some sort.

EDITOR'S NOTE:—*How would your pet dollar package come through such an examination? You think you know, but would it?*

If you doubt your ability to make an impartial appraisal of your own product, the Candy Clinic will be happy to assist you with a private examination along the lines of those conducted in these columns, and to furnish practical recommendations, analyses and formulas where necessary. A nominal fee will be charged for this service.

With the No. 27 FORGE M

Wrap 2400 Ba

in foil — 40 Bake

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This added touch of quality and attractess
"shelf life" or keeping qualities by din
for each piece can be had with pro

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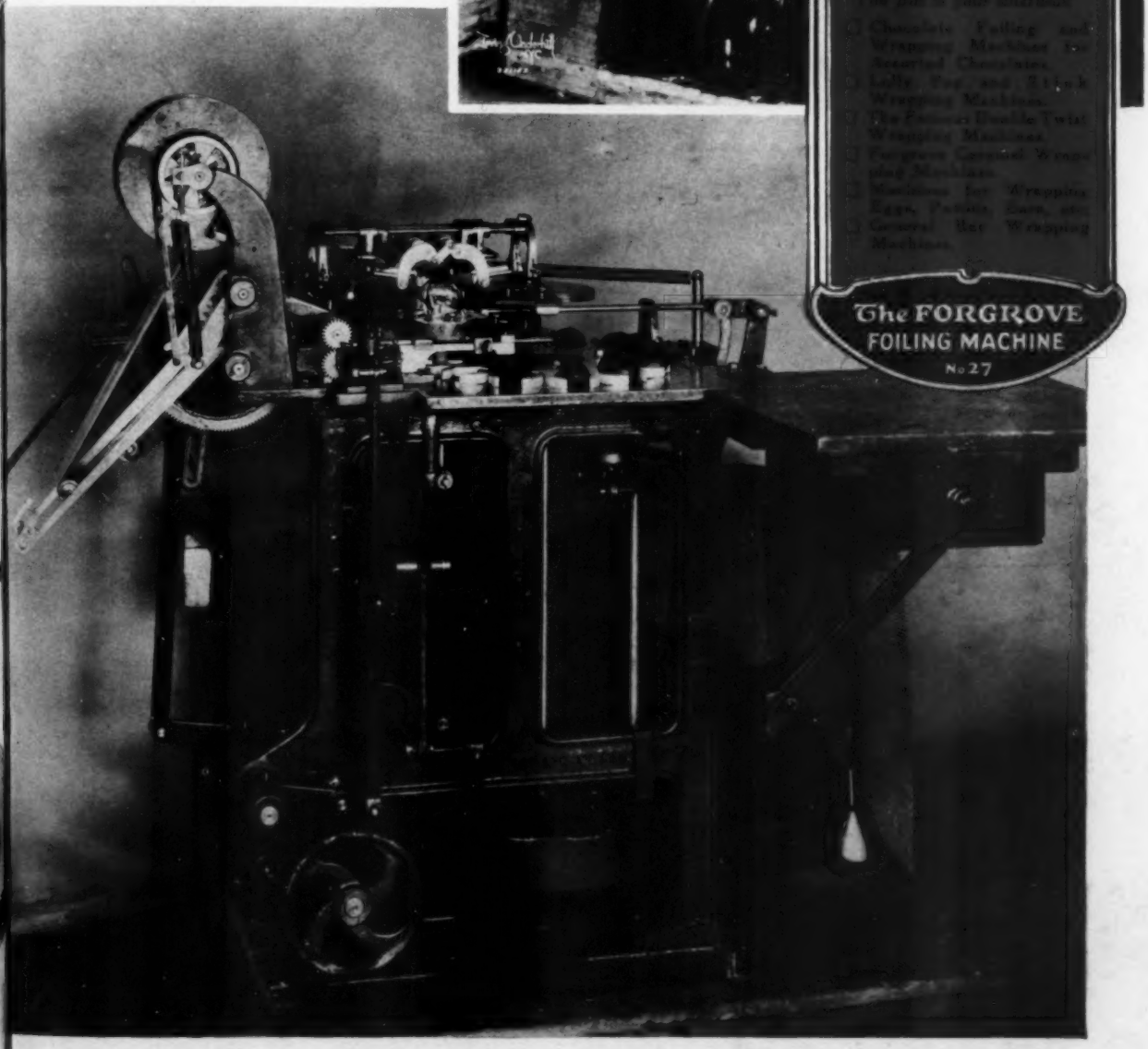

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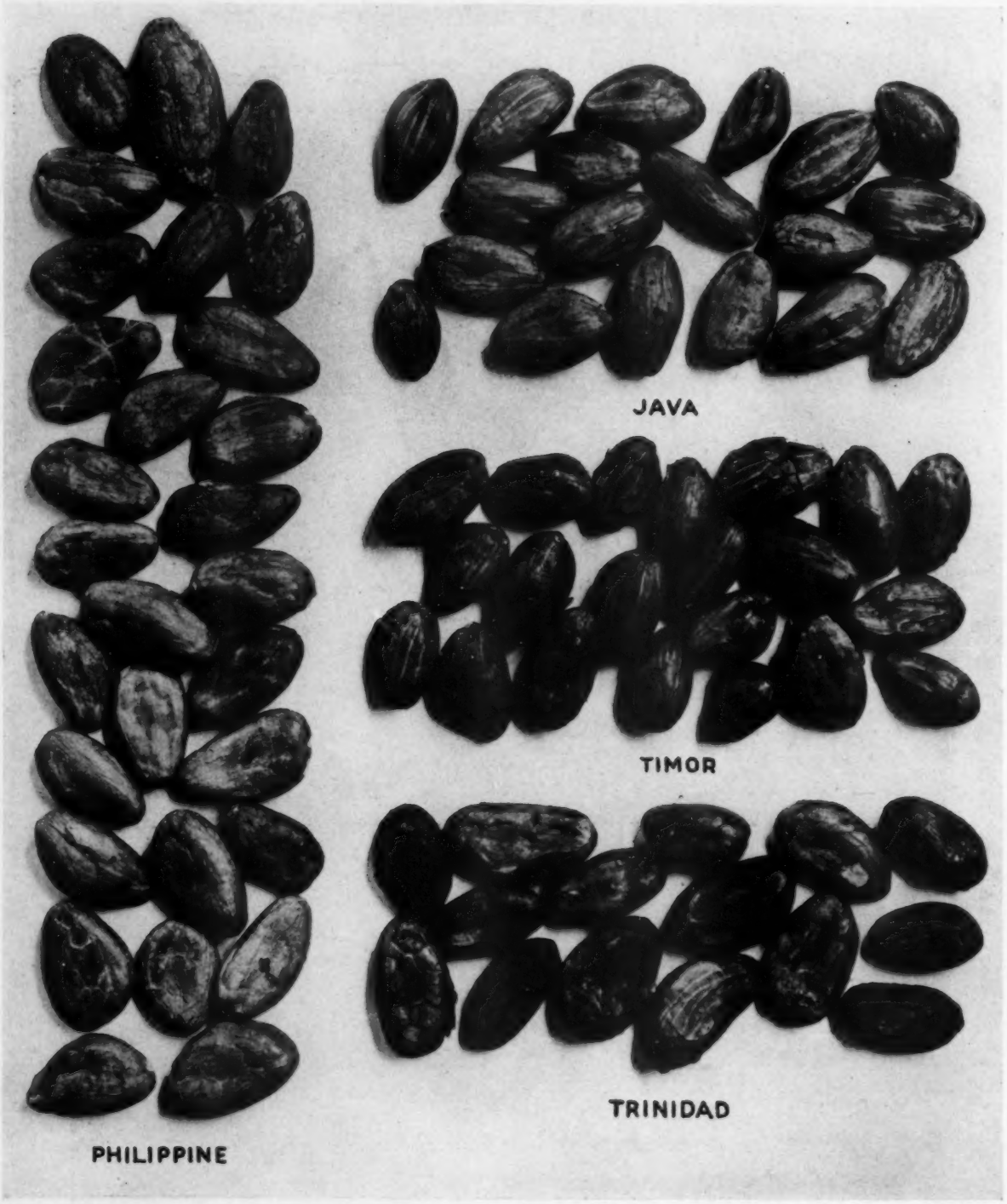
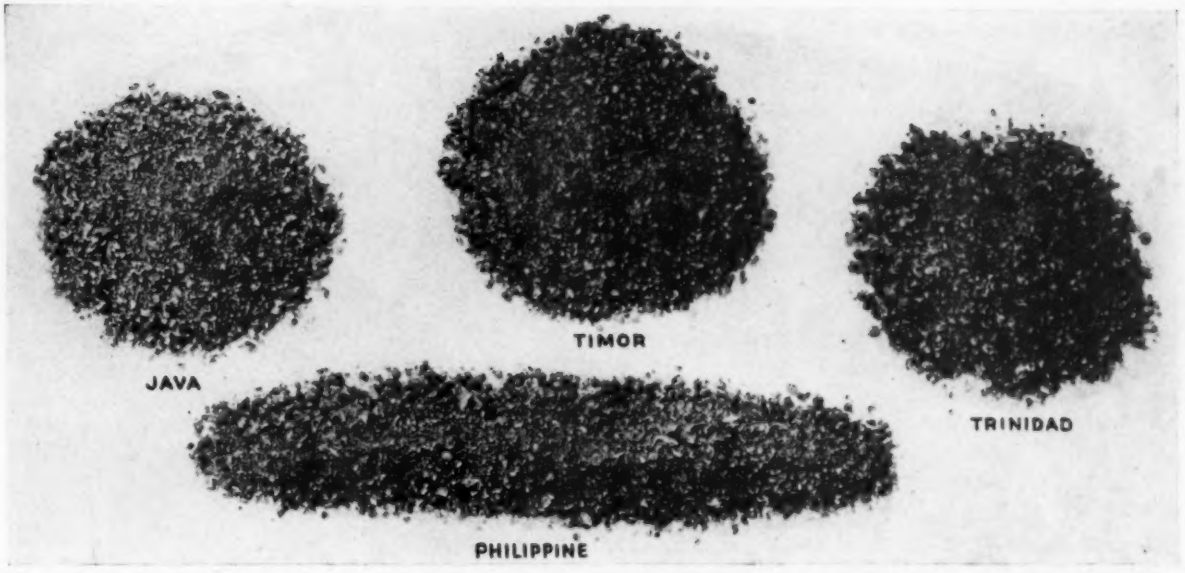
Michigan

Samples Show Present Philippine Seed Can Be Developed Into Mild, Light-Breaking Cocoa of Fine Quality



Sample at left taken from average run of native Philippine sstock. The majority of the kernels are of large size, plump, and thin-shelled. With proper fermentation and care in the selection of strains, this cocoa may become one of the highest qualities of flavor cocoa obtainable.



A comparison of grindings. Above, left to right: Prime Java, Timor, and Trinidad. Below: Philippine. The Philippine grinding, although somewhat darker than Java and Timor, is very much lighter than Trinidad and can undoubtedly be even further improved with a little care in cultivation and fermentation.

Philippine Cocoa Samples Arrive

Interest in Large Scale American Cocoa Cultivation Quickened by First Tangible Evidence of Promising Quality of Native Stock

Flavor Not Unlike Java But Without Objectionable Acid Character

IT was stated in these columns last July, that samples of cocoa would shortly be forthcoming from the Islands for the inspection of American chocolate manufacturers, the experiment being made through the medium of this paper, cooperating with an American importer of Philippine products. Though perhaps a trifle delayed, these samples have arrived and may be examined by interested manufacturers at the Editorial Office of the Manufacturing Confectioner (39 Cortlandt St., New York City).

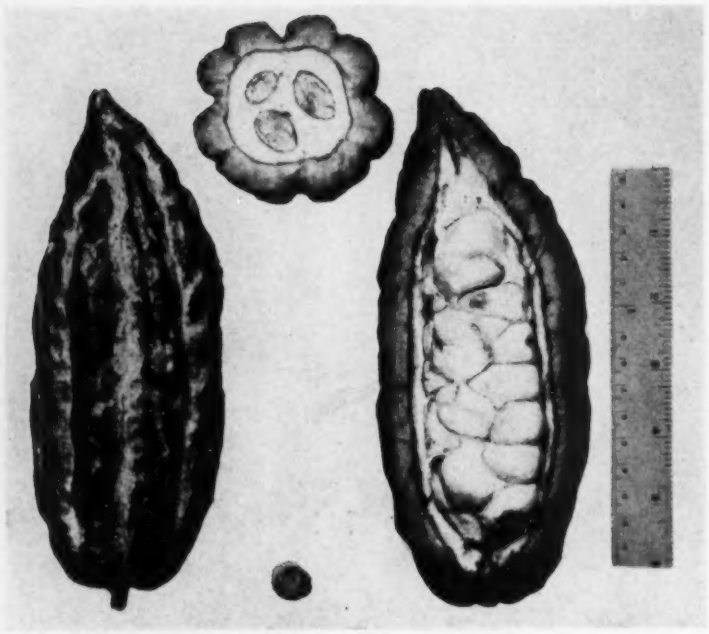
These first American samples of the seed which is now being produced in our Philippine colonies, are sufficiently promising to fully justify our earlier expectations of early American participation in insular cocoa cultivation. A letter from Dr. Gross which accompanied these samples, addressed the New York Office of the Lind Trading and Exporting Corp. as follows:

"We are attaching hereto, as much information as we were able to gather through the Bureau of Agriculture, as well as an article by ourselves, containing our personal knowledge on the subject, augmented by what we have learned from Dr. Brown, Director of the Bureau of Science, and Dr. Guerrero, foremost Filipino Botanist.

"If proper care and scientific methods are applied to the venture, the development of an Estate devoted to the cultivation of cacao beans offers a very remunerative return. All necessary natural conditions are available and, if not developed until now, the reason is in the native preference for the Oriental "Dolce far niente" over the Occidental habit of doing things.

"Various samples are being forwarded. In judging these, please remember that the present cultivation is crude, hardly any scientific methods being practiced.

"Cacao beans are obtainable from trees three years old, the plants have a fairly long life, and labor is plentiful under proper management. The general characteristic of the natives is that they are willing enough to work if under 'white' management; but if left to their own resources, they soon go to sleep. This is the chief reason why the Philippines have so far not had enough tropical products to export, for the goods



Typical Philippine cocoa pods, Forastero-Criollo mixed type. (Courtesy Philippine Dept. of Agriculture.)

can be had and the natural conditions are here and favorable.

Manila Office,
E. M. Gross, Ph. D.
Manager."

Report of the Examining Committee

Working in collaboration with a number of experienced coating and cocoa men, several members of the M. C. technical staff cut, ground, and critically examined these samples of cocoa soon after their arrival. A record was made of their findings and a portion of the sample shipment subsequently given a slight after-fermentation, and the results compared with previous data. A second portion of the original sample shipment was roasted in a small hand roaster and made into liquor with the aid of a small mill.

The report of the examining committee follows:

This cocoa is apparently a cross between two varieties, Criollo and Forastero. The beans are not very uniform as to size but run from small to large, a characteristic which could probably be corrected under suitable conditions of selection and culture.

The majority of the kernels exhibit a pronounced and characteristic bulge at the center, with pointed ends. They are mostly of this full-meated type; a few are flattened.

The shell is yellow brown, thin and easily removed with the fingers.

The unusual feature of this cocoa is its mild flavor and exceptionally light break. The outer surface of the nibs is chocolate brown but the cut surface is light brown, almost approaching the lightness of Java.

Tests showed the roasted nibs to give a good yield of butter (49 to 50 per cent).

Philippine cocoa is of mild flavor but definite chocolate character. In flavor and sweetness it is not unlike Java, but without the slight acid character which makes Java objectionable in some quarters. While it is evident that this cocoa can be still further improved by proper selection and cultivation, it needs no apology in its present state, being quite suitable for milk chocolate and other fine-flavored coatings.

The Government of the Philippine Islands
Department of Agriculture and Natural Resources
Bureau of Forestry
Manila

September 17, 1927.

The Editor
Manufacturing Confectioner Publishing Co.
Chicago, Illinois, U.S.A.

Sir:

In this morning's paper, I noticed an article calling attention to your publication carrying an article on the possibilities of Cacao production in the Philippines.

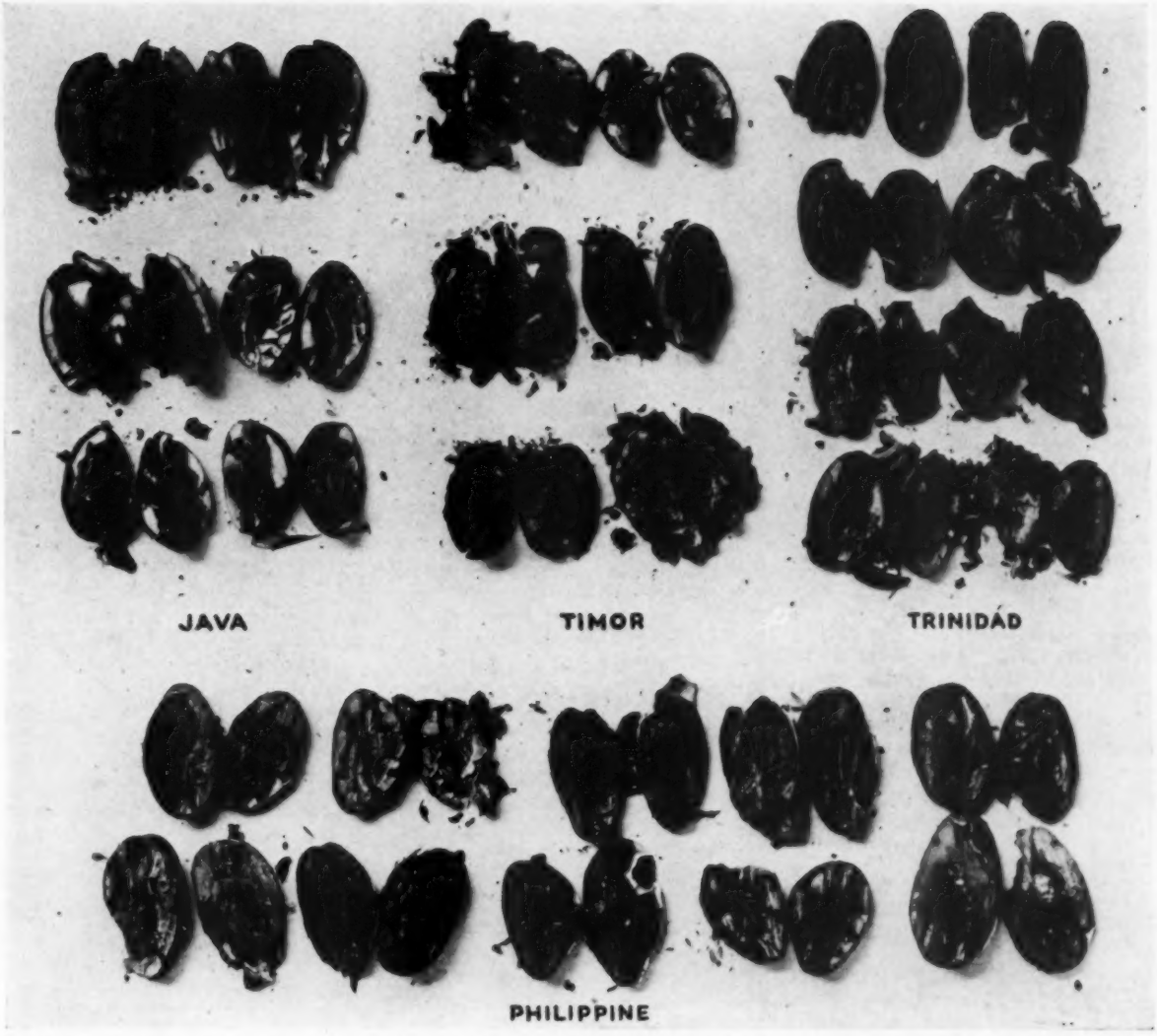
For your information, I may state that some years ago I received a request from a Cacao planter in Columbia, South America, asking me to furnish him Cacao seed from the Island of Maripipi, which lies north of the Island of Leyte. He stated that in looking over some of the old Spanish literature, he found that it was common knowledge in Spain at the time the publication was issued that Cacao from the Island of Maripipi was the finest flavored Cacao in all the Spanish colonies and brought the highest prices of Cacao in Spain. I furnished this man with seed and have never heard from him as to results. If I remember right, this planter lived in the Cauca Valley.

It may be of interest to you to look up an article I wrote for the "Asia Magazine", appearing in May, 1922, entitled "Where Shall We Go for Tropical Products?"

Very respectfully,

ARTHUR F. FISCHER
(Director of Forestry)

aff-ja



Philippine cocoa compares favorably with some of the finest of the light-breaking flavor cocoas under the rigorous conditions at the cutting table.

This report coincides with information received from the Philippine Department of Agriculture, which is to effect that the "blood" of the average Philippine cocoa plant contains both the Criollo and Forastero strains, the inferior Cabacillo being apparently absent.

Historic Mention of Philippine Cocoa

From these two strains and their various hybrids, the world's finest and most vigorous cocoas have been produced. Early Spanish literature is said to record the fact that the cocoa seed grown at that time in the Philippine Island of Maripipi was generally accepted in Spain as being the finest quality of cocoa obtainable anywhere in the Spanish Colonies. It will be remembered that at the time this was written, the Spanish Colonies embraced, in addition to the Philippines, a large part of the present cocoa-producing areas of South and Central America, Mexico and the West Indies.

This may prove an opportunity for history to repeat itself, for there is no question in the mind of any chocolate or cocoa man who has seen the present carelessly cultivated cocoa, but that under scientific cultivation and fermentation, this remarkably fine flavored bean can be developed into one of the highest qualities of cocoa on the commercial market.

Situated in precisely the proper geographical region for successful culture, and with all the advantages of cheap transportation and abundant labor supply, there is only one thing that keeps this vast tropical area from being one of the biggest and most successful cocoa-growing countries in the world. That one thing is the lack of American leadership with the spirit of "get up and go."!

The Awakening

Still, conditions are gradually changing. Not only are American chocolate manufacturers beginning

(*Continued on page* 50.)

M·C· INSTITUTE

An impartial reader service devoted to the analysis and discussion of the new or novel in methods of manufacture, supplies and equipment.

The Cashew Returns

FROM a position of comparative obscurity, the cashew nut has attained in the last three years a ranking in the two and a half million pound class,—which is to say that during 1927, there were imported into this country about 2,500,000 pounds of shelled kernels. Sixty per cent of this quantity has hitherto been marketed by a single firm but it is evident that other importers are more and more taking a part in its development. A comparison of the sales of cashews from January 1, 1925, to January 1, 1928, will show a phenomenal rate of increase:

(Based on the percentage of 1925 importations)

1925.....100%
1926.....240%
1927.....600%

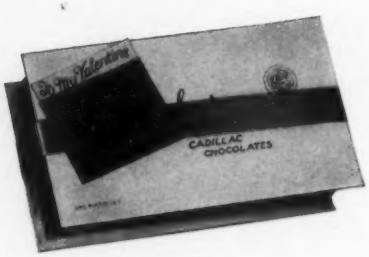
Five years ago you could hardly give them away. Infestation and uncleanliness were written all over them. Market sages said they had received a "black eye" with the public and that they would probably never recover wholly from it.

The sudden change which we have witnessed is due in large measure to improved methods of sterilizing and packing. A patented process is now widely employed in which the kernels are put up in sealed tins under an atmosphere of carbon dioxide. This process, while not effective in killing the eggs of contained animal life, certainly retards their development to a degree that has made the merchandising of the cashew possible. The gas used is harmless and a natural preservative.

Thus, although the methods of packing and handling are not perfect by any means, the tremendous increase in the nut's popularity in three years tells the story as no words can. Adequate screening of the shelling plants, combined with adequate sterilization and fumigation prior to shipment will do much to further improve the product and to continue it in increasing favor.

India and the West Indies hold almost inexhaustible stores of this valuable kernel; we have only begun to tap them now. With this addition to the fold of a new moderate priced nut meat, many new numbers are being worked out. The other day we saw some ungraded kernels that had been enrober-dipped in bittersweet chocolate.

From many quarters come indications that the Cashew has at last come into its own.



The Bandvelope

A combined band and envelope to enclose a greeting card or booklet describing contents of package. An attractive, new and inexpensive way to convert a regular stock package into an appropriate seasonal specialty.

Is There a Useful Niche for This New Fruit Pulp?

CALIFORNIA has contributed a new product to the constantly growi ; list of confectioners' raw materials,—prune pulp, in No. 10 tins. The large crop of prunes and the low prices of dried prunes are said to have been largely responsible for this departure in marketing policy. A considerable portion of future California packs is to be merchandised in this manner hereafter, the pulp providing a sorely needed balance wheel at times when the dried product shows signs of dullness.

To what extent the new pulp will displace apricot pulp and other fruit pulps in jellies and similar work, remains to be seen; first, because of the inherent characteristic of somewhat darker color, and second because the necessary practical tests of its jellying properties have yet to be made. Nevertheless, it is safe to assume that under the stimulus of present low prices many new and interesting uses will be discovered which will repay the confectioner for any time which he may spend experimenting with it.

Bulk Candies on a Self-Selling Package Basis

IT is a fact of some consequence that the chain stores and large independent retailers dislike to sell bulk candies. One of the wholesale manufacturers' biggest problems is to break down this sales resistance and put bulk candies on a self-selling basis. The display caddy pictured below

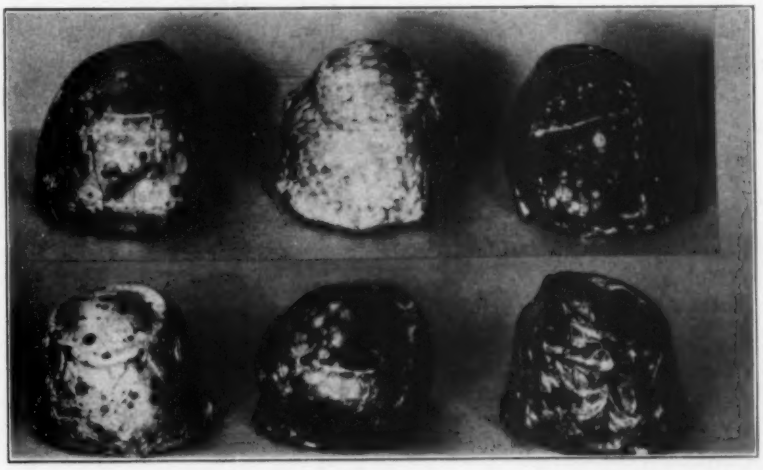
was designed to accomplish this result by:

(1) Packing the candy in sealed bags at the factory in exact weight units with the manufacturer's name printed on the bag. This eliminates retailers' losses through pilferage, overweight and unsalable goods. It speeds up candy sales by eliminating time of

packing and weighing during those precious moments when customers are lined up impatient to be waited on. The consumer is better pleased because he knows the goods have not been handled since leaving the factory and because there is the added assurance of getting the make of goods desired. In this method of merchandising bulk candy the manufacturer's identity carries through to the consumer; this is in line with the trend in all food products.

(2) By displaying samples of the candies mounted on a narrow card, showing amount and price per bag, under glass in front of each container. The consumer sees both goods and price. If it looks good to him, he picks up a sack, pays the clerk and is gone.

At a slight increase in cost per pound for sacking and sealing, this combination caddy and display rack puts bulk candies on an equal footing in the race with other food products for consumer favor. It makes for quick turnover. If automatic bag-filling and bag stitching machines are used, the added packing cost is extremely low. Worked out in conjunction with Cellophane or transparent glassine bags, this system of bulk merchandising may be the means of stimulating a greater interest of the better retail store organizations in many of the present wholesale lines of bulk candies.



Some new patterns in fancy foils.

Foil to Glassine on a Round Trip Ticket?

ONE of the largest foil manufacturers in the country has expressed the opinion, based upon sales tendencies of the past year, that the trend in candy bar wrappers is from glassine paper back to metal foils.

It was about three years ago that a majority of the bar manufacturers switched horses from foil to glassine, using some very striking and highly colorful printed designs. Nearly all of the "best sellers" introduced since that time have been similarly wrapped. The baggy dress of the stiff glassine made a much larger-appearing bar than the tight-fitting metal foil; and also, the cost of the glassine wrap was only about half that of the cheaper composition foil.

But with many manufacturers striving to outdo their competitors this saving in cost was quickly put back into the weight and size of the bars with the results already observed. Hence, the return to foil would present genuine complications, yet the indications are that the trek from glassine back to metal foil has definitely begun.

This greatly increased use of multicolored fancy tin and aluminum foils has already attracted the attention of the European foil manufacturers to such an extent that a number of them are now sending their sales representatives on regular trips to this country. They are offering many patterns beautifully colored and designed and report taking on considerable business.

While the American foil manufacturers have never attempted to develop their fancy foil lines to the extent to which the European manufacturers have done, reports are current that they will shortly be in a position to offer greatly augmented and improved lines of this class of goods. It is also understood that the largest manufacturer of aluminum foils will shortly open a new plant to be devoted almost in its entirety to the production of fancy foils.

Apart from the use of these foils on bar goods, the package goods manufacturers are beginning to put two or three fancy foil pieces in a box to lend color to their assortments.

Editor's Note.—The M. C. Institute will endeavor to keep you informed of new and interesting applications of materials and equipment to the confectionery field. Your comments or suggestions will be appreciated.

The Havemeyer & Elder Refinery, erected about 1858. The building in the center was destroyed by fire in 1882. The building at the right is still in use. (Courtesy, National Sugar Refining Co.)

With the opening of vast markets of cheap sugar

Candy Becomes of Age

Fourth Article in the Series

(IV. Forty Centuries of Sugar and Candy)

BY ORVILLE H. KNEEN

THE confectioner of the early nineteenth century had no alternative but to clarify his own raw, or "soft" sugar. This he continued to do, using bullock's blood and charcoal. Even in Abraham Lincoln's time large quantities of molasses and dark, strong-flavored brown sugar were still used for making candy.

In 1838 steam forced its way into the refinery; the vacuum pan followed about 1855, charcoal filters later; granulating machines for drying the damp white crystals came about 1848. In 1860 came the centrifugal pan for separating the syrup from crystallized sugar, These developments furnished considerable impetus to the candy business, for each succeeding improvement in quality increased the usefulness of sugar about the candy factory.

When the Germans of the west coast, the Spreckels, warred with the Havemeyers of New York, the prices dropped steadily. The confectioner benefited accordingly. In 1880-92 came "the most furious commercial war this country has ever known," for all over the world the "price went down to the lowest ever known," and then dropped to half that price. Germans were then getting 11% of sugar from their beets, the French only 6%. But a Frenchman contributed the polariscope, brought here about 1870, which with a single flash revealed the commercial value of any grade of sugar. Chemists reduced the time of refining soft sugars from two weeks to 16 hours, and only a few hours more for granulated sugars.

Eating Our Weight in Sugar!

Secretly-improved methods and intense competition cut the cost of refining from 10 cents a pound in 1838 to 3 cents in 1876, and to only 1 cent in 1895. Beet sugar also came into our markets in the late 90's, but today, unlike the situation on the Continent, supplies only one-seventh of our total sugar consumption.

Candy eaters promptly responded to the lighter charges of the sugar brigade, and while our first manufacturing census of 1810 gave only 7,019 tons of maple and refined sugar as having been made during the year (an average of only 1.94 pounds per capita), by 1840 the average per capita consumption of the United States was 9.1 pounds; and in 1870 19.6 pounds—a ten-fold increase in 60 years.

Today we eat our average weight in sugar every year, although, unfortunately for the candy industry, only 8% of it is in the form of manufactured candy.

It was Sebastian Chauveau, of Philadelphia, who started the era of American machine-made candy

when in 1845 he imported a revolving steam pan for sugar-coating nuts and various other centers. His ball candies, Jordan almonds and "jaw breakers," as they were reduced in price, became the forerunners of the dragee numbers which are taking their turn at the wheel. But the old-fashioned stick candies, the "barber poles" and the sugar plums remained great favorites for long years afterward. Even when grandma was being courted, the girls must have had stronger jaws than the present-day recipients of chocolate marshmallows and soft-flowing creams.

One of the great American contributions to the land of sweets was molasses candy. It is said to have originated with a thrifty New York baker who, disliking to throw away the sticky stuff which collected at the bottom of his brown sugar barrels, took to boiling it down and pulling it until it became a taffy. He considered it impossible to sell such a lowly confection, so he gave a stick of it away with each loaf of bread. To his surprise, the demand for the candy outgrew the demand for bread and he decided to charge for it; in this manner, so the story goes, the world gained one of its most tasty candies, a popular favorite today. And it is noteworthy that the manufacturers who today give merchandise away with their candy are doing it with much less happy results to themselves and to the industry.

The great International Exhibition of 1851, in England, awakened the world to the fact that here indeed was a real industry. The resulting publicity and interchange of ideas did wonders for the advancement of the art. Our own confectioners exhibited to a small extent, and profited to a much greater extent. They were particularly impressed with the machinery exhibits, and it was not long before Yankee genius for invention was being applied to candy machinery. Less than quarter of a century later, in 1876, our own first national exhibition at the Centennial found the American confectioner already well on the road to supremacy in this field.

Geo. M. Mills Recalls His First Machines

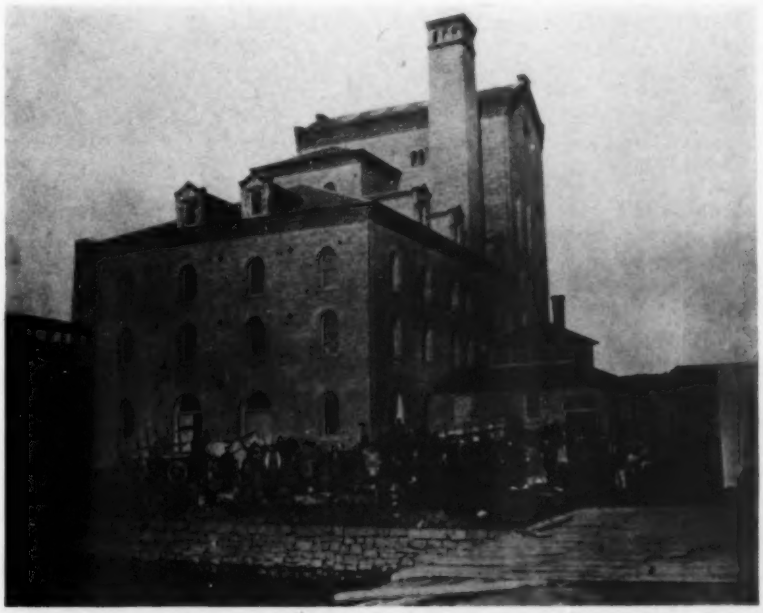
There is at least one man living who has a clear recollection of the candy business as it was seventy-five years ago. George M. Mills, still living in Philadelphia at the comfortable age of 85, tells of his coming to this country at the age of four and of his many years' connection with the machinery and equipment business of Thos. Mills and Brother, established in 1864, and still in business.

"We furnished the first machines for Stephen F. Whitman,' Mr. Mills told the writer, "and later for Croft & Wilbur. During the Civil War they used to pay me weekly with bales of 'shin plasters.' The candy business grew rapidly after the Exposition in 1876. Hard candy took right away with the people. Mint sticks and lemon sticks were great favorites, as were drops of all kinds, first made on machines in England."

Many of our elder candy-eaters today can doubtless recall the rock candy of Civil War days and later, flavored with rosewater and vanilla. Even into the '90's the stick candies and other hard-boiled goods, broken taffies and pail mixtures, were the leading staples of the confectionery industry. Honey candy, butterscotch, hickory nut and maple sugar candies also found a place in the hearts, not to mention the stomachs, of our illustrious forebears.

(To be continued)

The Decastro & Donner group. The refinery in center erected 1870. At that time the foremost and most up-to-date refinery in the country. The plants at right erected by same company in 1880. (Courtesy, National Sugar Refining Co.)



Matthiessen & Wiechers Sugar Refinery. Erected 1862, Jersey City, N. J. This was the original refinery erected by these people. (Courtesy, National Sugar Refining Co.)

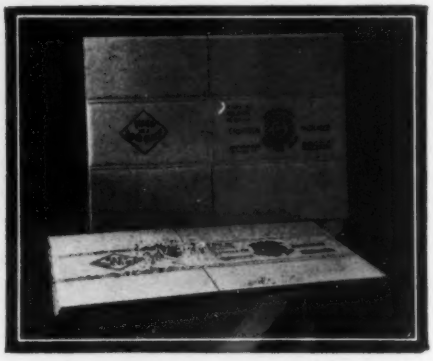
Conserving Forests and Profits with Modern Shipping Containers

Development of new types during 1927 warrants research by candy manufacturers into present packing and shipping methods

BY PACKING MATERIAL EDITOR

The Manufacturing Confectioner

Above: This corrugated box may be opened by simply pulling a string. The draw string is built into the board during the process of manufacture.



Above: The draw string featured eliminates manhandling of contents by customers impatient to open the cartons. Left: The draw string carton "knocks down" like ordinary cartons.

JUST as wood for the the construction of our homes and business buildings is steadily being replaced by networks of iron, steel, concrete and compo-boards, so do we find it gradually being replaced in other fields. The term Shipping Containers, has taken on a broader and more diverse definition, except for very heavy merchandise, and has come to embrace a large number of containers constructed of fabricated products such as corrugated board, fibre board, etc.

Perhaps the chief factors responsible for bringing about this transition is our steadily diminishing supply of native lumber. Wood shipping cases have soared to high levels, their costs showing continued increases over a period of years.

The simplified construction and greatly improved methods of manufacture which have recently been adopted in the production of fibre and corrugated boxes, and the substantial savings in storage and freight, resulting from their use, are further reasons for the firm foothold which they have secured, supplanting to a large extent the heavier and more costly wood containers.

Corrugated and fibre boxes are delivered to the shipper in the knocked-down or flat condition which involves a minimum of labor from the box factory to be included in the cost of the container. While in this compact condition a large number of them can be stored in the same space required by the ordinary wood case permitting the additional floor space to be utilized for more productive work in the factory. When the shipper is ready to use them they are easily and quickly set up, packed and closed, a minimum of hand labor being required.

The gross weight of a shipment of candy in fibre or corrugated cases is obviously a good deal less than the same shipment encased in wood, and this additional economy in transportation charges represents a tidy saving which the confectioner cannot afford to ignore especially in these times of high freight and express rates.

Where it is possible to have the cartons returned for re-use, the cost savings may be multiplied a great many times. A national candy manufacturer, with factories located in several different cities, has estimated a saving of over $5,000 in freights and casing costs alone the first year he switched over from wood to corrugated boxes. His early fears that the corrugated containers would not prove substantial enough to carry a heavy material like chocolate coating over long distance was soon discovered to be entirely unfounded and the subsequent reuse of the containers continue to net him even greater savings in the original container-cost, as well as in transportation and the labor of packing. This re-use feature of the corrugated carton figures largely in the interplant shipments and in shipments to the larger jobbers who are in a position to return substantial quantities of the knocked-down cartons at one time. A good percentage of the cartons made, after extensive research, at least four or five round trips before it was neces-

sary to replace them with new containers.

Several of the fibre and corrugated box manufacturers have developed a number of greatly improved packages with which to seek out new fields for this type of carrier.

The Robert Gair Company has put out a fibre caddy designed primarily for bulk biscuits and crackers with which to replace the tin can which formerly was used almost exclusively for this class of goods. This new caddy is moisture proof and may be fitted with a metal and glass top when used for display. This container appears to have possibilities for similar employment in connection with bulk lines of candy.

A waterproof corrugated box is now being manufactured by the Mid-West Box Co., of Chicago. The liners of the board used in the box, as well as the corrugated sheet are treated with a composition of asphaltum. This treatment, in addition to protecting the contents of the box against moisture, adds considerably to the strength and rigidity of the box. A rather severe test was recently made on this box when five men weighing a total of 800 pounds, were made to stand on an empty box while a hose was played on it for two minutes, without the container showing any signs of weakness.

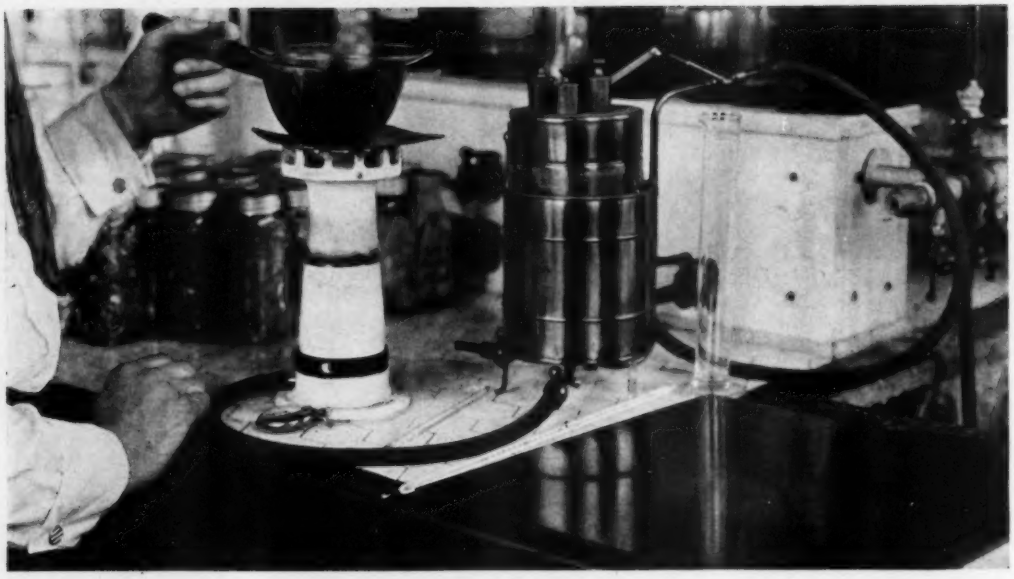
A novel and at the same time practical idea in shipping containers is embodied in a recent development of the Consolidated Paper Company. It is a regulation corrugated box but so constructed that it may be opened by merely pulling a string. The draw string is built into the corrugated board at the time it is made and is applied in such a manner that the additional cost of the string-opening feature is very slight. The manufacturers believe that this package will materially reduce damage and breakage of the contents due to the usual manhandling of the carton when it is being opened by the customer.

Still another new type of carton has been added to the ranks of shipping containers during the past year. It is called the "Burlabox," developed and patented by the Columbia Corrugated Company. The "Burlabox" is made of a high test corrugated board, coated on the outside with asphaltum and then covered with burlap. Stitching the corners with copper staples adds to the strength of the box. The asphaltum coating makes the package waterproof as well as moisture-proof. The carton is also claimed to be odorless, a fact which must be considered in a candy container because of the tendency of the candy to absorb odors.

The makers of the "Burlabox" report that it is now being used by several candy manufacturers. They recommend it, not only for domestic but for export shipments, where the asphalt coating guards against water damage and provides needed protection against vermin of all kinds.

At a National Convention held recently traffic delegates were informed that the annual loss to American manufacturers and retailers as a result of improper and wasteful packing and shipping methods amounts to more than $150,000,000. A saving in expense being the equivalent of an added profit, it behooves candy manufacturers to devote a little time and study to their present packing and shipping methods to make reasonably sure that they are not contributing an undue share to this one hundred and fifty million dollar loss.

Who said corrugated cartons don't stand up? This asphaltum-treated carton stood up under 800 lbs. of plant executives while a hose was played on it for two minutes. Honest, the box was empty.



Cooking the Test Batch

What Constitutes a "Strong" Sugar?

What do the refiners understand us to mean when we ask them for strong sugars?

BY A. ADAMS LUND

YES, we in the candy industry all know now that a strong sugar is a sugar that resists inversion. But do the refiners take the word "strong" to mean the same thing we do? The syrup people also ask for "strong" sugars, and to them the strength of a sugar is the measure of its ability to *resist* crystallization!

We also know that up until the past three or four years no self-respecting candymaker of the old school would call anything but a "damp" sugar a strong sugar.

But now the damp sugar, Diamond A, Brilliant Confectioner's A, Candy A, and the like, appears to have gone out of style. Has it been at the expense of that necromantic "strength," as we call it, which every candymaker senses but few are able to define? And what makes a strong sugar strong, anyway?

One refiner will answer that he has three grades, a sort of fine granulated which is a "throw out" of broken or irregular crystals, standard granulated, and the damp A sugar referred to above, and since all three of them are made from first-run liquors, there should be no difference whatever in their strength. According to this authority, the weakening of the sugars during subsequent reboilings, is purely a physical process.

At each boiling, the size of the crystal which will crystallize out of the solution becomes definitely smaller even though color, moisture content and polarization remain unchanged. Thus the hard candy manufacturer's preference for a large crystal receives scientific support, for although this does not mean that a fine-grained sugar may not be strong, it does mean that a coarse crystal is prima facie evidence of that strength.

The supposedly greater strength of the damp sugars has long been attributed to the fact that they are not made to pass through the granulators. In these huge revolving cylinders, the granulated grades are dried by being passed slowly through heated air, the application of the heat causing a slight inversion to take place. Fine Granulated, in fact, is said to contain slight evidences of glucose resulting from this breaking down of the more complex sugar.

Working along these lines, and in order to satisfy the confectioner's requirements while at the same time getting away as

Which of These Sugars Do YOU Use?

Specimens of candy made from different white sugars by using the standard candy test.

Courtesy, Carbohydrate Laboratory, U. S. Bureau of Chemistry.

much as possible from the wet grades which are more difficult to handle, some of the refiners began to employ cold tunnels for what they termed "cold air drying." This, quite naturally overcame the objection of caramelization in the granulated grades.

Other refiners, attacking the problem from a slightly different angle, decided that since the strength of a sugar was merely a matter of alkalinity, subsequent runs of the same syrup becoming definitely less alkaline, the strength of the sugar could be definitely controlled in the refinery or in the customer's factory by the addition of a very minute amount of soda-ash, or baking soda. The average proportion required was determined to be approximately 1 part to 100,000, with a maximum of 1 part to 50,000 and a minimum of 1 part to 200,000.

The Test for Whiteness

It is interesting to note that in the test for sugar whiteness, strong sugars show up slightly darker than weak sugars because of the more alkaline liquors from which they are made. The following test for whiteness is given by Dr. Schlegel of the National Sugar Refining Company:

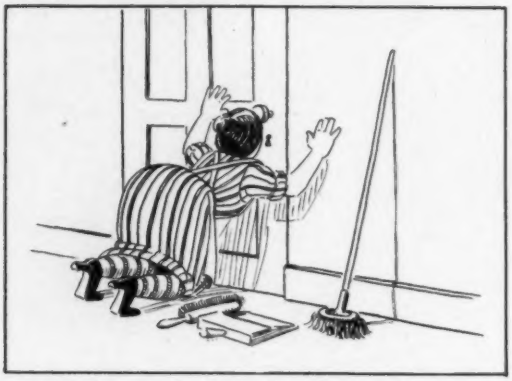
CONVERT the sugars to be tested to a 60 Brix solution and stand in Nessler tubes. The higher the column, the more severe the test. Eight inches is suggested. Compare the color of these with the color of a standard column consisting of an equal height of distilled water, by

(*Continued on page 52*)

Pouring the Syrup

PUZZLE PICTURES—Each depicts a well-known 5c specialty

No. 7



No. 8

You know them, of course, what are they? (Answers in next month's issue.)

Ask Me!

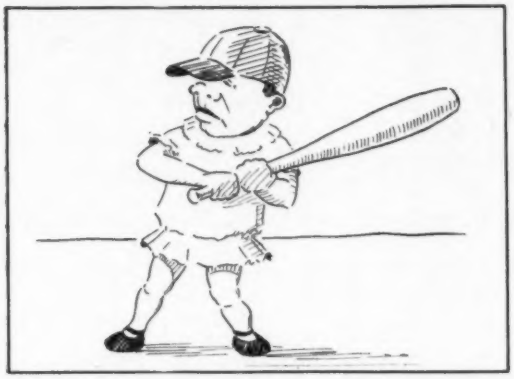
Did You Make Your "Book" Last Month?

Then Try a Hand at These:

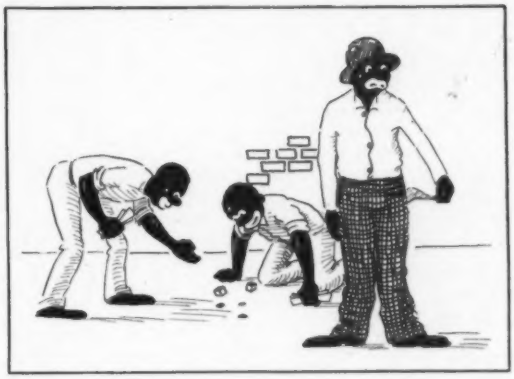
1. *What produces the gloss on chocolates?*
2. *What is meant by "slate" as applied to cocoa beans?*
3. *What chocolate product is known abroad as "hail"?*
4. *What material used in chocolate work is derived from the bark of a tree?*
5. *How are pistachios used in the meat-packing industry?*
6. *According to Spanish literature, where did the finest-flavored cocoa beans come from?*
7. *Over how long a period may chocolate-coated goods be safely stored?*
8. *What is the common name for Methyl Protocatechuic Aldehyde?*
9. *How would you differentiate between the melting point and softening point of a hard butter or a coating?*
10. *Name eight different materials commonly used in tying or ribboning boxes.*

Answers to January Puzzle Pictures

No. 5—Baby Ruth (Curtiss Candy Company)



No. 6—7-11 (D. Auerbach & Sons)



Answers to January Questions

7 Tricks Is a Grand Slam

What's Your Score?

Question 1: *Why do chocolates which are exposed to unfavorable temperature and humidity conditions turn gray?*

Answer 1: There are two types of grayness: (1) "fat bloom," which is caused by a part of the cocoa butter melting and rising to the surface through capillary action, where it crystallizes out in a thin film; and (2) "sugar bloom," caused by the deposition of atmospheric moisture on the surface of the chocolate in the form of "sweat." This moisture dissolves a portion of the sugar in the chocolate, and this in turn crystallizes out as a white film as the moisture dries out.

Question 2: *What are the relative flavoring strengths of ethyl vanillin and methyl vanillin? (Do you know which of these you are using?)*

Answer 2: Methyl vanillin is the commoner and less expensive form. Ethyl vanillin, which until recently was not being produced in commercial quantities, is claimed to possess at least three and one-half times the flavoring strength of methyl vanillin.

Question 3: *Why are some cocoa powders termed "soluble," while others are not?*

Answer 3: The term "soluble" is generally used to denote cocoa which has been "dutched" or alkali-processed in order to saponify a portion of the fat and cause it to go into solution more readily. Also, a cocoa whose particles are so finely subdivided as to remain in suspension in the cup, a condition very nearly approaching colloidal solution.

Question 4: *Name the country from which we obtain each of the following varieties of cocoa bean: (a) Navidad, (b) Caracas, (c) Sanchez.*

Answer 4: (a) Ecuador, (b) Venezuela, (c) San Domingo.

Question 5: *What are the first ingredients on record as having been used to flavor chocolate?*

Answer 5: "....vanilla and other spices." (Prescott's "Conquest of Mexico.")

Question 6: *What is meant by "dancing" as applied to cocoa beans?*

Answer 6: Polishing the beans by treading upon them with the bare feet, a practice still followed in parts of Central and South America.

Question 7: *How does aging affect chocolate coatings?*

Answer 7: Aging produces a smoother and mellower flavor.

Question 8: *What gives cocoa its tonic properties?*

Answer 8: The presence of approximately 2% of a mild alkaloid known as theobromine. In its physiological action it is similar to the caffeine in coffee and the theine in tea.

Question 9: *Do acids "grow" and of what significance is this fact to the chocolate industry?*

Answer 9: Yes. The fatty acids which cause rancidity in cocoa butter and other fats will increase constantly unless the product is protected from the slow hydrolizing action of contained or atmospheric moisture.

Question 10: *How do the following materials function to retard the graying of chocolates? (a) Malt extract, dextrins, etc. (b) High melt fats.*

Answer 10: (a) At the expense of thickening the coating, the dextrin compounds retard graying by increasing the viscosity of the cocoa butter so that it does not travel to the surface so readily.

(b) The addition of a high melt fat increases the melting point of the fat present in the chocolate and thus enables it to withstand a higher temperature before the fat melts and rises to the surface. The temperature of the human body being only a fraction over 98 degrees, however, it is obvious that the melting point of the mass can not be increased beyond this point without leaving an insoluble residue in the mouth.

Heat Struck

(*Continued from page* 31.)

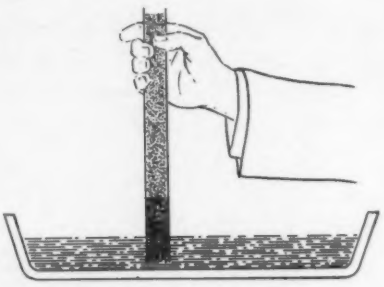
lamp wick. In this manner water not only moves upward but is transferred by capillarity in all directions through the soil. And here is an important fact which will be seen to parallel the case of chocolate: *The amount and speed of the movement of water by this means depend largely upon the fineness of the particles composing the soil and the spaces which are left between each.* The ascent is most rapid through coarse sands. In clays whose particles are exceedingly minute the water travels very slowly even though it may ultimately reach a height of many feet above the level of the water table from which it draws.

The Analogy in Chocolate

Thus the theory that the graying of chocolate is caused by capillary action is confirmed by the fact that *the finer a chocolate is milled the slower the graying action.*

The part which sunlight plays in hastening the action is not fully understood. Chocolate exposed to direct sunlight frequently grays at temperatures which are *below* the normal softening point of cocoa butter. The action is thought to be due to the presence of ultra violet rays, which is the only respect in which sunlight differs from artificial light. Evidently these rays exert some sort of a catalytic action, the effect of which is the increased capillarity.

A variation of our problem occurs where a low melt oil, such as



When a glass tube filled with earth is plunged in a basin of water, the water is seen to rise through the earth as oil in an ordinary lamp wick.

milk fat, peanut or cocoanut oil is used in the center of the coated piece. The oil penetrates the coating and on its way through dissolves a portion of the cocoa butter which it subsequently deposits on the surface of the piece producing grayness.

Obviously, our problem is either to keep the butter content of the coating in a solid state at normal temperatures and thus unresponsive to the forces of capillarity, or in some way to impede the progress of the melted portion to the surface of the coating. The first premise involves such considerations as careful handling, temperature control, protection from sunlight and moisture, and raising the softening point of the fat mass. Retarding the fat's progress to the surface of the coating might be accomplished in a variety of ways, all the way from "homogenizing" the chocolate to decrease the size of the solid particles and as far as possible bring about a condition of colloidal suspension, down to the simpler and more common expedient of thickening the cocoa butter by the addition of substances possessing colloidal properties.

Raising the Softening Point

Suppose we analyze the first of these two problems, namely, to keep the contained fat in a solid state at normal temperatures. As we raise the softening point of this fat, we raise the temperature necessary to produce grayness.

There are a number of things which we might do to keep that butter from breaking down into fluid form under ordinary conditions of summer temperature. We may raise the quality standard of our butter and coating purchases by *specifying* h i g h e r softening points. The effect of such action would be to transfer a share of the responsibility for grayness from the users to the manufacturers of these products, where it belongs. This would not solve the problem but would open the way to serious and interested research by the manufacturers of coatings and cocoa butters.

Again, the cocoa butter might be "fractionated" to remove the lower melting fats which it contains; or we ourselves might control the softening point of the butter mass in our coatings by mixing with it any one of a number of foreign vegetable fats which have been satisfactorily demonstrated to raise the softening point of the resulting compound.

(To be continued)

Philippine Cocoa Samples Arrive

(*Continued from page* 39.)

to realize what it means to them to have their sources of supply dominated by a foreign country, but there are signs that the Filipino planters themselves are awakening to the possibilities of using this profitable crop as a shade crop for rice, kapok and other tropical products.

In fact, it was only a few weeks ago that one of these planters, fortified with the assurance of manufacturer—and broker—cooperation, left us to return to the Islands, with plans all made to devote 3,000 acres to cocoa. 3,000 acres—200 trees to the acre—in a few years over a half million cultivated cocoa trees capable of producing a million and a half pounds of dried cocoa annually. At the present time the entire cocoa production of the Philippines is only about twice this amount, or three million pounds annually.

American manufacturers will watch the development of this project with genuine interest since the setting out of each tract such as this brings us measurably nearer to a "Cocoa Dominion" of our own.

Placing
Manufactured Weather*
within the reach of
all Industries

*It isn't Manufactured Weather unless it's a Carrier System.

Announcing
The Carrier
Unit Air Conditioner

THE *Carrier Unit Air Conditioner* humidifies the air, washes the air, heats or cools the air and produces uniform controllable air circulation. ***The Unit*** automatically creates and controls conditions of Temperature and Humidity to suit the manufacturing process. ***The Unit*** is compact, it occupies less than half the space of an ordinary office desk. ***The Unit*** requires only simple water, steam and electrical connections to prepare it for operation. The Unit is operated by a single motor at an overall efficiency never before approached in air conditioning equipment. ***The Unit*** is sold at an exceedingly low price. A single Unit will meet all of the requirements in the average small chocolate or hard candy room. ***Three Units*** will condition a large work-room.

HERE is the most revolutionary step ever taken in the science of Air Conditioning.

¶ Carrier Engineers, the pioneers and leaders in the design, development and application of systems to create and control any desired atmospheric conditions within buildings, have now perfected ***The Carrier Unit Air Conditioner.***

¶ This Unit performs every function of the complete Carrier Central Station Air Conditioning Systems which for 25 years have been making "Every day a ***good*** day" in the greatest candy factories of the world. The Unit is not a miniature humidifier copied from the standard central station equipment, but a completely novel design developed under the direction of Willis H. Carrier to place Manufactured Weather within the means of ***any*** manufacturer.

¶ There is an economic margin which directs whether the Carrier Unit Air Conditioner or the Carrier Central Station System shall be used in candy factories. Upon request Carrier Engineers will present all of the facts, without obligation, to confectioners.

Every Confectioner, large or small, every Engineer should obtain immediately the full details of the Carrier Unit Air Conditioner. Write for Bulletin 105, *The Carrier Unit Air Conditioner.* Ask for a visit from one of our engineers.

Carrier Engineering Corporation

Offices and Laboratories
Newark, N. J.

NEW YORK PHILADELPHIA BOSTON CHICAGO CLEVELAND WASHINGTON KANSAS CITY LOS ANGELES

(*Continued from page 47*)

looking down into the columns. A standard granulated should show up practically water-white.

The Test for Strength

The candy test for straight sugars, as employed by the American Sugar Refining Company, is as follows:

THE sugar to be tested is boiled to candy in a casserole made of 3/16" sheet copper, the diameter of which at top is 4½", the diameter at bottom 2¼" and the depth 2½". It is provided with a lip for pouring and with a handle consisting of a soldered-on cylindrical socket of copper, which accommodates a round wooden handle.

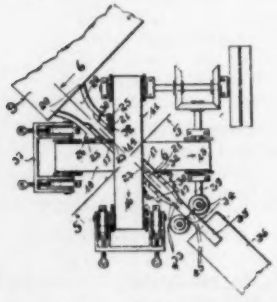
Place in the casserole 227 grams of sugar to be tested and 87 cc water; place over a Bunsen Burner flame and stir until the sugar is dissolved. The flame must be so regulated that the mixture is brought to a boil in five to five and a half minutes, at which time the casserole is covered with a clock glass. The boiling is continued, the cover being removed when fifteen minutes have elapsed from time of placing over flame, and contents being stirred thereafter constantly but slowly with a glass thermometer until the temperature has reached exactly 350° Fahrenheit. The contents are then poured immediately on a 3/16" copper plate about 12" square or on a marble slab. When cold the candy is broken up and its direct polarization is determined.

Eighty-seven cc water are used for sugar having a water content of from 1% to 2%, as, for instance, Diamond "A" sugar. With sugar of greater or smaller water content, a greater or smaller amount of water is taken.

A sugar, whose candy polarizes 95° Ventzke, is sufficiently strong for most purposes. A sugar, whose candy polarizes 96° Ventzke or over, may be classed as very strong sugar. The damp sugars normally test around 95½° to 96°.

New Patents

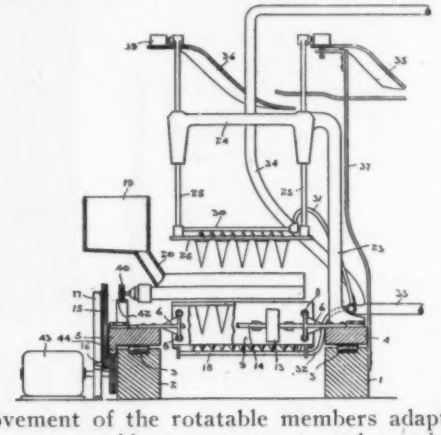
1,640,868. Automatic Hard-Candy Machine. Fred E. Zaiss, Los Angeles, Calif. Filed July 1, 1926. Serial No. 119,877. 9 Claims. (Cl. 107—10.)



1. In a candy machine, a trough for conveying matter, conveying members crossing said trough movably, guides disposed axially in said trough and between said members adapted to maintain a certain space between the members.

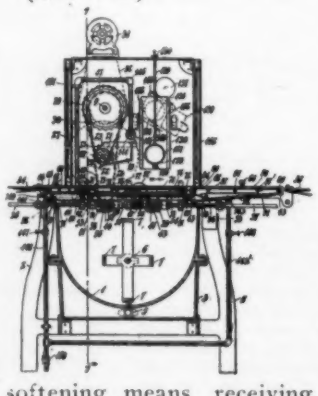
1,639,097. Cone-Making Machine. David W Mitchell, Toronto, and George O. Robinson, Port Dover, Ontario, Canada. Filed May 23, 1921. Serial No. 471,963. 2 Claims. (Cl. 107—58.)

1. A cone making machine, comprising, a pair of concentric circular members rotatably mounted in a horizontal plane, brackets mounted on the circular members supporting paired parallel rods, mould blocks arranged in pairs slidably mounted on said rods, rotatable cam members arranged parallel with an outside of each of said mould blocks, means operatively connecting said rotatable cam members to operate in unison in opposite directions to operate to close said blocks and to move said blocks apart, means arranged in the path of



movement of the rotatable members adapted to operate said cam means at predetermined intervals, cores for said moulds, vertical guides for said cores, means for raising the cores at predetermined intervals, means for feeding batter to the moulds while the cores are raised, and means for heating said pairs of moulds individually and continuously.

1,639,263. Confectionery-Coating Machine. John Massarella, Cincinnati, Ohio. Filed Apr. 3, 1922. Serial No. 549,151. 10 Claims. (Cl. 91—3.)



1. In a machine of the character described, a coating conveyor section and means for softening the coating material adjacent to this section, a distinct conveyor section removed from the direct influence of said softening means, receiving the confections from the coating section for hardening of the coating material thereon, a shield plate under the conveying portion of said distinct section, means near one end of said plate, against said distinct section, to remove surplus coating material tending to harden thereon, and softening means near said distinct section, within the extent of said plate, to modify the hardening action on the coating of the confections and on the coating material engaged by said removing means.